Bioenergy production and use can make a valuable contribution to the sustainable development agenda. With careful management, various forms of bioenergy can help countries meet growing energy demand while concomitantly realizing carbon emissions reductions, climate change mitigation and adaptation efforts and improve livelihoods. However, an increasing demand and supply of biofuels can raise the risk of environmental and social impacts, and exacerbate structural development challenges in many countries, as is the case of increased production of many different globally traded commodities. From increasing deforestation to child labour, progress in reducing upstream supply chain impacts has motivated the introduction of legislation downstream in many high-income economies - requiring companies to introduce responsible sourcing policies, guided by risk-based due diligence and better stakeholder engagement.

Instances such as the European Union’s (EU) draft Directive on Corporate Sustainability Due Diligence (CSDD), the EU Regulation on deforestation-free products and Corporate Sustainability Reporting Directive (CSRD), in addition to supply chain legislation in Norway, the United Kingdom and others, all point to reducing development risks through production and trade. This also applies to business and trade in the biofuel sector and important sub sectors, such as Sustainable Aviation Fuels (SAF). Identifying and managing social and environmental risks can be challenging for companies downstream in biofuel supply chains, often thousands of kilometres away from upstream suppliers and development impacts linked to processing and production. To advance, many governments and companies require practical support to understand how to identify and mitigate risks through sourcing, according to the prioritization and likelihood of development risks taking place.

The aim of the side event is to discuss and identify ways in which inclusive growth can be promoted through the identification and mitigation of risks in biofuel supply chains. This side event will bring together both public and private sector stakeholders to share solutions for biofuel supply chains to promote sustainable development. It will also provide a forum for sharing of views on various initiatives that address adverse impacts in global sourcing in biofuel supply chains.

The side event is organized jointly by the Global Bioenergy Partnership (GBEP), an international initiative providing a forum for stakeholders in a joint commitment to promote sustainable bioenergy, with FAO’s Office of Climate Change, Biodiversity and Environment (OCB) and FAO’s Markets and Trade Division (EST) which lead a focus on global value chains (GVCs) and development through its work on Responsible Business Conduct (RBC) and the OECD-FAO Guidance for Agricultural Supply Chains. Its advisory services on RBC are designed to help governments, businesses and other stakeholders advance with risk-based due diligence and reduce development impacts from upstream production to retail.

This event is organized in collaboration with:

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1 Some EU countries already have due diligence legislation in place, including Germany’s Act on Corporate Due Diligence in Supply Chains, France’s Law on Corporate Duty of Vigilance.
2 The EU’s Proposal on Deforestation-free products responds to five commodities, namely cattle/beef, cocoa, coffee, palm oil, soy and wood.
3 Several countries already have certain thematic strands of supply chain due diligence in place, such as the UK and Australian legislation on modern slavery; other countries, including Canada, Japan, Mexico and Thailand, are advancing with legislation on risk-based due diligence in (agricultural) supply chains.
4 The OECD-FAO Guidance is embedded in the RBC policy frameworks of over 60 countries, including most EU Member states, the UK, Norway, Switzerland, Australia, US, Brazil, Mexico, Argentina and many others; it is the leading global sector framework for E&S risk. It was also recently endorsed by 64 agricultural ministers at the Global Forum for Food and Agriculture (GFFA) in 2023.
AGENDA

15.00 – 15.15  Sustainability of biofuel supply chains – understanding risks and opportunities  
Tiziana Pirelli, GBEP Secretariat/FAO

15.15 – 15.40  Responsible sourcing, risk-based due diligence and biofuel supply chains  
Tomislav Ivančić, Global Advisor, Responsible Sourcing and Agricultural Supply Chains, FAO

15.40 – 15.55  Policies to support sustainable and responsible sourcing – importance for the clean energy transition  
Jinlei Feng, IRENA

15.55 – 16.50  Interactive Discussion – Risk-based due diligence and biofuel supply chains  
Moderator: Gerard Ostheimer, Biofuture Platform
Panellists will give a 5-minute intervention on their views concerning risk-based due diligence in biofuel supply chains.

Keynote speakers:
- Blanca de Ulibarri, RSB
- Rainer Janssen, WIP Renewable Energies
- Trip Taylor, Foreign Agricultural Service, USDA
- Marco Nocita, ENI

Interactive Discussion with all panellists and speakers.

16:50 – 17:00  Closing Remarks  
Tomislav Ivančić, FAO
Tiziana PIRELLI

Tiziana Pirelli is the Coordinator of the Global Bioenergy Partnership (GBEP) which is based at the Food and Agriculture Organization of the United Nations. In the last 13 years, she has been working on the implementation of projects aimed at improving the sustainability of natural resources management in local agrifood chains, especially through the establishment of integrated bioenergy pathways. Her field activities have taken her to more than 20 countries across Europe, Sub-Saharan Africa, South America and South-East Asia. In 2016, she joined FAO and GBEP as lead technical advisor for the implementation of the GBEP Sustainability Indicators for Bioenergy (GSI) in Paraguay and Vietnam; she delivered trainings to build and strengthen the capacities of local stakeholders on sustainable bioenergy in Ghana, Togo and Philippines; and she worked to strengthening positive linkages between Wood energy and Forest Landscape Restoration realms in SSA, as a contribution to the African Forest Landscape Restoration Initiative - AFR100. From 2021 onwards, she has contributed to the work of the Climate Smart Agriculture and the Forest and Farm Facility teams, respectively in Botswana and Ecuador, and in Zambia. She holds a BSc in Agricultural Sciences and Technologies, and a PhD in “Economics, ecology and preservation of agricultural and landscapes-environmental systems”.

Tomislav Ivančić, FAO

Tomislav Ivančić is a Global Advisor on Responsible Sourcing and Agricultural Supply Chains at the Food and Agriculture Organization of the United Nations (FAO). Previously, he worked as a sustainability and human rights advisor for several multinational companies, as a Team Leader on Global Supply Chains and Responsible Business Conduct at the European Commission and as a consultant on trade, sustainability, and decent work for several UN agencies. Mr. Ivančić holds a MSc in Local Economic Development from the London School of Economics and Political Science (LSE), an MA in International Relations and European Studies from the Central European University (CEU), and an Honours Bachelor of Arts in Economics from the University of Toronto. He is also an alumni of Harvard Business School’s executive programme on global value chains and a PhD candidate at the University of Lisbon, focused on responsible sourcing and sustainability requirements in global agri-food supply chains, with a focus on low- and middle-income economies.

Jinlei Feng, IRENA

Jinlei Feng is a Programme Officer at IRENA. His research work is focused on policies for the deployment of renewable energy in end uses, including heating and cooling and transport sector, policies for sustainable bioenergy, end-of-life management of solar photovoltaic and batteries, as well as renewables in cities. He has 15 years of experience in renewable energy, climate change and sustainable development.
<table>
<thead>
<tr>
<th><strong>Blanca de Ulibarri, RSB</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanca is EU LCA Project Manager of RSB. With over 12 years of professional experience, she is also an experienced researcher in the fields of bioenergy, renewable energy, climatic change, sustainable development and environmental sciences. Previously employed at CENER, the National Renewable Energy Center of Spain, Blanca has built significant experience implementing projects in the context of EU legislation. She has participated in several H2020 projects covering bio-urban waste recovery, cascading use of agricultural residues, energy system integration and sustainable aviation fuel. She is also knowledgeable in the certification of bioenergy systems, thanks to participating in projects involved in RED certification schemes. She is based in Spain and holds two Master’s degrees in Agronomist Engineering and Circular Economy.</td>
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<thead>
<tr>
<th><strong>Trip Taylor, USDA</strong></th>
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<tbody>
<tr>
<td>Trip Taylor is an Agricultural Attaché at the U.S. Mission to the European Union in Brussels, Belgium. Prior to arriving in Brussels, Trip specialized in agricultural trade relations and market access negotiations in the Asia-Pacific region, primarily with China and Japan. Before joining the Foreign Agricultural Service in 2015, he served as the V.P. of Business Development at an agribusiness trading firm in Washington, D.C., interned for the U.S. Commerce Department in Sydney, Australia, and managed an athletics company in Shanghai, China. He holds an M.S. in International Relations and Commerce from the Georgetown School of Foreign Service and a B.A. in Political Science with minors in Economics, History, and Mandarin Chinese from DePauw University.</td>
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<tr>
<th><strong>Marco Nocita, ENI</strong></th>
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<tbody>
<tr>
<td>Marco Nocita is an agronomist with a strong background in GIS/remote sensing, data science, and research. Currently, he is employed at ENI Agros, where he is focusing on promoting the cultivation of oil crops in degraded and abandoned areas without impacting the food chain or forest resources. His responsibilities include selecting and monitoring such areas using GIS and remote sensing data, as well as providing agronomic follow-up to the projects. In his previous role at the European Commission - Joint Research Centre, Marco worked as scientific officer of Sustainable Resources Directorate covering several duties in the framework of the Common Agriculture Policy (CAP). He was involved in the development of Nature Restoration Law, contributing to the creation of soil indicators for the monitoring and assessment of agro-ecosystems condition at European Scale.</td>
</tr>
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Sustainability of biofuel supply chains: understanding risks and opportunities

Tiziana Pirelli
Global Bioenergy Partnership
Food and Agriculture Organization of the United Nations (FAO)

EUBCE Side event: Responsible sourcing and Biofuel Supply Chain
5 June 2023
Energy demand is increasing

Significant increase of domestic GDP in less developed countries

ExxonMobil: 2018 Outlook for energy: A View to 2040.
Contribution of Energy to global GHG emissions

Global net anthropogenic GHG emissions 1990-2019

Energy accounts for more than two-thirds of total GHG emissions globally (IEA, 2021)

Energy related GHG emissions, 2000-2021

2019: 40.74 GtCO$_2$eq y$^{-1}$
A gradual transition towards modern and sustainable bioenergy systems is urgently needed.

At the U.S. Climate Summit in April 2021, 137 countries have committed to C neutrality.
Modern bioenergy offers multiple opportunities to decarbonize the energy sector

Source: OECD/IEA, FAO, 2017
Types of ‘modern’ bioenergy

Solid biofuels:
- e.g. improved feedstock such as wood chips, pellets, briquettes, charcoal (when efficiently produced) used to feed improved cooking systems as well as industrial combustion, gasification, combined Heat and Power (CHP) plants

Gaseous biofuels:
- biogas and biomethane from anaerobic digestion;
- syngas from gasification

Liquid biofuels
- used as such (e.g. hydrous ethanol) or blended with fossil fuels (e.g. biodiesel) for transport, power production, domestic uses.
The importance of biofuels for decarbonizing the transport sector

Biofuels are one of the options to decarbonize the transport sector, especially for heavy-duty trucks, ships and aircraft with few alternative solutions in the long term.

Key advantages of biofuels:
- Do not require retrofitting: they can be used, up to a certain percentage, in traditional engines;
- Biodegradable: Do not emit toxic substances (e.g. particulate matter).

In the last **two decades**, both production and consumption of liquid biofuels increased 11-fold.

Nearly **60% of biofuel demand is in OECD countries**, and 40% in non-OECD countries.

The rising **consumption of biofuels is driven by public policies** that authorize and in many case advocate for their use, e.g. by establishing biofuels mandates for the mixing of biofuels in traditional fuels.

In **2020, 65 countries introduced mandates**, with different degree of severity and compliance.
Policy promoting biofuels

- Required blend mandate: mandatory minimum thresholds;
- Overall blend mandates;
- Establish GHG emission reduction targets, while promoting the use of biofuels to achieve them.

56% of global biodiesel production is concentrated in 4 countries of the planet (i.e. USA-soybean, Indonesia-palm oil, Brazil-soybean, Germany (EU)-rapeseed).

84% of bioethanol production occurs in USA and Brazil

### Biofuels: Risks and opportunities

#### Support sustainable Development of the sector

<table>
<thead>
<tr>
<th><strong>BIOMASS SUPPLY</strong></th>
<th><strong>TRANSPORTATION AND LOGISTIC</strong></th>
<th><strong>PRODUCTION AND OPERATION</strong></th>
<th><strong>MARKET and TRADE: DEMAND AND PRICE</strong></th>
<th><strong>POLICY AND REGULATORY FRAMEWORK</strong></th>
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<tbody>
<tr>
<td>Job creation</td>
<td>Opportunity to develop transport networks and logistics</td>
<td>Lack of capacities</td>
<td>Competitive uses of biomass</td>
<td>Mandates for biofuels deployment</td>
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<td>Income generation</td>
<td>Creation of cooperatives for collecting biomass feedstock and transporting it to processing facilities</td>
<td>Lack of local facilities for processing the raw material</td>
<td>Fluctuating costs of raw material (e.g. in the case of soybeans they represent 75% of total production costs)</td>
<td>Improved access to finance, inputs, markets and technology</td>
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<td>Diversification of farm products</td>
<td>Long transportation distance -&gt; indirect emissions of GHG and other pollutants</td>
<td>Lack of local investors</td>
<td>Impact on costs of national food basket</td>
<td>To reducing upstream supply chain impacts many high-income economies shall introduce legislation downstream requiring companies to introduce responsible sourcing policies, guided by risk-based due diligence and better stakeholder engagement</td>
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<tr>
<td>Adding value to abandoned and marginal land</td>
<td>High costs for storage and transport</td>
<td>Improved access to finance, inputs, markets and technology</td>
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<td>Adding value to waste</td>
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<td>Green jobs and income generation</td>
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<td>Waste and residues disposal: reduction of waste volume and odours, GHG emissions from natural decay, avoid burning of agr.residues</td>
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<td>Increased access to clean energy</td>
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<td>Control over invasive alien species</td>
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<td>Improved energy efficiency</td>
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<td>GHG emissions reduction</td>
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<td>Reduced need for fossil fuels</td>
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<td>Enhanced country’s energy independency</td>
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<td>Add value to waste and residues</td>
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<td>Lower energy costs</td>
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*MRV results inform policy makers*
Focusing on **SUSTAINABILITY** is KEY to take out the best of opportunities;

Knowing **country context** is key to recognize and valorize locally available natural resources, habits and traditions;

Assessment shall take into account both public and private objectives, as well as competitive uses of biomass resources.
The Global Bioenergy Partnership
The Global Bioenergy Partnership (GBEP)

- International initiative established to implement the commitments taken by the G8 in 2005 and receiving renewed mandates from G7 and G20 since then.

- Argentina and Italy are the co-Chairs. FAO is a founding partner and hosts its Secretariat at FAO HQ in Rome.

- 39 Partners (including 23 countries and 16 international organizations and institutions) and 48 Observers (Governments and International Organizations)
GBEP Sustainability Indicators for Bioenergy

GBEP has developed the most widely recognized and agreed set of indicators for the assessment and monitoring of bioenergy sustainability.

Key Characteristics
- Science based
- For all forms of bioenergy
- Voluntary – not legally binding
- AIM: To facilitate the harmonization of sustainability assessments and to support policy formulation
GBEP sustainability indicators for all types of bioenergy

**ENVIRONMENTAL**
1. Life-cycle GHG emissions
2. Soil quality
3. Harvest levels of wood resources
4. Emissions of non-GHG air pollutants, including air toxics
5. Water use and efficiency
6. Water quality
7. Biological diversity in the landscape
8. Land use and land-use change related to bioenergy feedstock production

**SOCIAL**
9. Allocation and tenure of land for new bioenergy production
10. Price and supply of a national food basket
11. Change in income
12. Jobs in the bioenergy sector
13. Change in unpaid time spent by women and children collecting biomass
14. Bioenergy used to expand access to modern energy services
15. Change in mortality and burden of disease attributable to indoor smoke
16. Incidence of occupational injury, illness and fatalities

**ECONOMIC**
17. Productivity
18. Net energy balance
19. Gross value added
20. Change in consumption of fossil fuels and traditional use of biomass
21. Training and re-qualification of the workforce
22. Energy diversity
23. Infrastructure and logistics for distribution of bioenergy
24. Capacity and flexibility of use of bioenergy
Measured over time, the GSIs show progress towards or away from a sustainable development path as determined nationally.
Implementation of the GSI

14 countries have implemented the GBEP indicators
2 countries are in the process of implementation

IMPLEMENTED: Argentina; Colombia; Egypt; Ethiopia; Germany; Ghana; Indonesia; Italy; Jamaica; Japan; Kenya; Netherlands; Paraguay; Viet Nam.

IMPLEMENTATION PHASE:

Brazil; Uruguay.
GBEP and FAO join forces to foster the development of Responsible Biofuel Supply Chains

Objective:
Create a dedicated platform to support all stakeholders (e.g. policymakers, private companies, farmers) to managing risks, while contributing to sustainable development.
Mainstreaming Responsible Business Conduct in the Biofuel Sector

5 step framework for risk-based due diligence

1. Identify, assess and prioritise risks in the supply chain
2. Design and implement a strategy to respond to identified risks
3. Establish strong company management systems
4. Verify supply chain due diligence
5. Report on supply chain due diligence

- SUSTAINABILITY assessment
- Awareness raising on RBC
- Trainings
- Capacity Building
- Support enabling policy framework
Thank you for your attention

FOR MORE INFORMATION

www.globalbioenergy.org

GBEP-Secretariat@fao.org
Responsible sourcing, biofuel and SAF supply chains

Production, supply and development impacts in a changing world of trade and sustainability requirements

Tomislav Ivančić, Global Advisor, Responsible Sourcing and Agricultural Supply Chains
Markets and Trade Division (EST)

Food and Agriculture Organization of the United Nations (FAO)
Biofuel and SAF production, trade and global demand

- Future of production and trade – (i) who will drive exports? (ii) Imports? (iii) Demand-driven development impacts?

- Global demand for biofuels growth by 28% (41 billion litres) from 2021-2026 (IEA, 2021); SAF to increase 20% between 2020-2027 (IEA, 2022); major airlines set 10-15% SAF targets by 2030, up to 65% by 2050

- Current concentration of production, markets and supply chains vary where biofuel and SAF exports fixed to a set of players (BR, IN, ID, AR, TH), existing and upcoming hubs for processing and trading biofuels (ex. SG), steady import markets: US, EU

- Bright future for many low and middle income economies— but also large sustainability and development risks owing to a variety of challenges including climate change, land tenure, food security and others
FAO’s work on Responsible Business Conduct (RBC) in Agriculture

FAO works to advance better development outcomes through Responsible Business Conduct (RBC) in sourcing and trade.

It's advisory services on RBC aim to encourage development through responsible sourcing by:

- Supporting governments design better policies to guide RBC among companies and stakeholders.
- Help companies reduce social and environmental impacts particularly upstream in supply chains in low and middle income economies.

Growing global population, rising demand for food, growing demand for SAF and biofuels.
Increased regulation on responsible business conduct and development impacts relevant to enterprises and agricultural supply chains, 2010-2023


Legislation characterised by certain thematic areas including:

- Corporate governance, transparency and bribery
- Environmental and social due diligence
- Sustainability reporting
- Key development concerns such as climate and carbon emissions, deforestation, greenwashing, modern slavery and forced labour, child labour, decent work
Evolution of Responsible Sourcing and Voluntary Sustainability Standards (VSS) in Agricultural Supply Chains, 1950-2023

Source: Ivančić and Dias Sardinha, forthcoming 2023
OECD-FAO Guidance for Responsible Agricultural Supply Chains

• Launched in 2016 following 2-year multi-stakeholder consultation process

• Leading global framework for agri-businesses and investors, incorporates existing RBC standards (including UNGPs, ILO MNE Declaration, OECD Guidelines)

• Introduces how companies can manage social and environmental risks and development outcomes in supply chains by establishing due diligence systems and multi-stakeholder cooperation

• Illustrates how certain risks can be pronounced in developing economies and interlink with structural development challenges (e.g. food security, land rights, carbon emissions, deforestation)
• Rooted in adapting business models to identify, assess, mitigate and prevent impacts in own business operations and those of suppliers (supply chain);

• Prioritizes by severity and likelihood of the impact

• Considers leverage and impacts caused, contributed or linked to business activities

• Flexible, tailored to companies of different sizes, contexts, etc.;

• Dynamic – ongoing, responsive and informed by stakeholder engagement;

• Views disengagement as a last resort
Responsible sourcing and biofuel supply chains: trade, sustainability and development

Biofuel, SAF production and global market access: a closer look at environmental and social risk management as part of trade and sustainability requirements

• Due diligence a growing requirement for export and global trade, applied to business and verifying that they have system in place to manage social and environmental risks, beyond auditing

• Considers risks and development impacts past Tier 1 suppliers

• Moves beyond financial risks for business: applies a material focus on social and environmental risks in sourcing
OECD-FAO Business Handbook on Deforestation and Due Diligence in Agricultural Supply Chains

Designed for businesses, based on OECD-FAO Guidance and its 5-step framework

Introduces how businesses can:

• Address deforestation **upstream and downstream in the supply chain**
• Implement **due diligence** that is risk-adverse, but also forest-positive
• Troubleshoot **bottlenecks** in considering different case instances
• Address current or forthcoming **legislation** on due diligence and deforestation
• Engage with **different stakeholders**

• **Launch in July 2023, UN Food Systems Summit**
World Banana Forum (WBF)

- The World Banana Forum is a global multi-stakeholder platform bringing together main actors along global banana supply chains to foster collaboration and share best practices on sustainable production and trade.

- 40+ members representing retailers, importers, exporters, governments, trade unions, civil society organizations and research institutions.

- Gathers different partners to facilitate change in the business-enabling environment, with a focus on encouraging key development and sustainability in the banana sector (e.g., climate change, living wages, decent work, gender equity, etc.).
Responsible Tropical Fruits

FAO’s **Responsible tropical fruit value chains project** aims to address sector challenges in **pineapple** and **avocado** commodity production and trade by:

- Supports businesses in managing risks and improve the sustainability of their operations and those of their suppliers
- Building a network of committed industry actors
- Providing technical guidance on sustainability issues based on rigorous analysis of the sector
- Generating knowledge on practical application of the OECD-FAO Guidance and market expectations on sustainability in trade (ex. EU, US, Australia, etc)
Thank you

Merci

Gracias

谢谢

Спасибо

Grazie

Responsible Business Conduct (RBC) in Agriculture

OECD-FAO Guidance for Responsible Agricultural Supply Chains

Email: tomislav.ivancic@fao.org
Policies to support sustainable and responsible sourcing – importance for the clean energy transition

Jinlei Feng
Programme Officer, International Renewable Energy Agency (IRENA)

Side Event: Responsible Sourcing and Biofuel Supply Chains, EUBCE 2023, 05 June 2023
Bioenergy contributes the largest share of renewable energy consumption.

Bioenergy provided around 12% of global energy demand in 2019.
Traditional use and heating are major end uses

In 2020, more than 80% of bioenergy is used for cooking and heating in buildings and industry, providing 20% of total heat consumption.
Modern bioenergy plays an important role in the global energy transition

Modern bioenergy consumption in 2019 and 2050 in IRENA’s 1.5°C Scenario, by sector

Potential biomass feedstocks

Note: “Others” includes bioenergy for non-energy use and as chemical feedstock; EJ = exajoule.

Source: IRENA
Bioenergy sustainability is a complex topic

Potential aspects related to bioenergy sustainability

<table>
<thead>
<tr>
<th>Potential negative impacts</th>
<th>Potential benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental aspects</strong></td>
<td><strong>Socio-economic aspects</strong></td>
</tr>
<tr>
<td>Emissions caused by land use change</td>
<td>Emission reductions through replacing fossil fuels</td>
</tr>
<tr>
<td>Emission from the supply chain</td>
<td>Land restoration</td>
</tr>
<tr>
<td>Air pollution from biomass combustion</td>
<td>Improved forestry management</td>
</tr>
<tr>
<td>Biodiversity loss or invasive species</td>
<td>Improved waste management</td>
</tr>
<tr>
<td>Increased water consumption</td>
<td>Improved soil quality</td>
</tr>
<tr>
<td>Reduced water quality</td>
<td>Improved water quality</td>
</tr>
<tr>
<td>Reduced soil quality</td>
<td><strong>Potential benefits</strong></td>
</tr>
<tr>
<td>Deforestation</td>
<td>Improved public health</td>
</tr>
<tr>
<td>Competition with food for land</td>
<td>Access to modern energy services</td>
</tr>
<tr>
<td>Threats to smallholders’ livelihoods</td>
<td>Improved energy security</td>
</tr>
<tr>
<td>Expensive BECCS</td>
<td>Job creation</td>
</tr>
</tbody>
</table>

- Reduced methane emissions through capture from landfills and waste streams
- Additional income from agricultural and forestry residues
- Improved gender equality
Wood pellets, biodiesel and bioethanol are major bioenergy commodities

Global bioenergy trade in major markets, 2020

Note: The figure does not include all bioenergy trade due to limited data. Other international trade of bioenergy may exist but is not shown in this figure.

Source: IRENA analysis based on Argus, Japanese Forestry Agency, UNComtrade, and USDA
A comprehensive policy framework is necessary to ensure sustainability.
The agriculture and forestry sectors of Southeast Asia can generate a considerable volume of residues and waste.
THANK YOU

jfeng@irena.org